IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A packet communication system comprising:

at least two full-mesh wavelength-division-multiplexing transmission units, each of which includes n number of interfaces, the full-mesh wavelength-division-multiplexing transmission units capable of establishing a bidirectional full-mesh communication between all of the interfaces using a wavelength path based on a wavelength-division-multiplexing technique, where n is an integer equal to or greater than 3;

[[an]] a plurality of edge-packet transfer ~~unit that~~ units, each of which includes at least a packet recognizing unit, an external-packet transmitting/receiving unit, and an internal-packet transmitting/receiving unit, and is connected to the interface of one of the full-mesh wavelength-division-multiplexing transmission [[unit]] units by the internal-packet transmitting/receiving unit; and

an internetwork connection unit that includes at least a packet recognizing unit and a packet transmitting/receiving unit, and connects the full-mesh wavelength-division-multiplexing transmission units in a multistage tree-shaped structure through the plurality of edge-packet transfer units, the internetwork connection unit [[is]] being connected [[to]] between two of the ~~edge packet~~ plurality of edge-packet transfer [[unit]] units, wherein

one of the two of the plurality of edge-packet transfer units is connected at an upper-stage of the internetwork connection unit, and the other one of the plurality of edge-packet transfer units is connected at a lower-stage of the internetwork connection unit,

both the packet recognizing [[unit]] units of the plurality of edge-packet transfer [[unit]] units and the packet recognizing unit of the internetwork connection unit identify [[the]] a next-destination edge-packet transfer unit that is a next destination of a packet from a header of the packet,

the external-packet transmitting/receiving unit ~~of the edge-packet transfer unit~~ inputs a packet received from a user terminal outside of the external-packet transmitting/receiving unit to the internal-packet transmitting/receiving unit, and transmits a packet output from the internal-packet transmitting/receiving unit to the outside of the external-packet transmitting/receiving unit when the next destination of the packet identified by the packet recognizing unit of the edge-packet transfer unit is the edge-packet transfer unit that is not connected to the one of the full-mesh wavelength-division-multiplexing transmission units,

the internal-packet transmitting/receiving unit ~~of the edge-packet transfer unit transmits the packet input from the external-packet transmitting/receiving unit to the wavelength path of the full-mesh wavelength-division-multiplexing transmission unit corresponding to the edge-packet transfer unit that is the next destination of the packet identified by the packet recognizing unit, if the next destination of the packet identified by the packet recognizing unit is another edge-packet transfer unit connected to the full-mesh wavelength-division-multiplexing transmission unit, transmits~~ outputs the packet input from the one of the full-mesh wavelength-division-multiplexing transmission [[unit]] units to the external-packet transmitting/receiving unit when ~~wavelength path of the full-mesh wavelength-division-multiplexing transmission unit corresponding to the other edge-packet transfer unit, and if~~ the next destination of the packet identified by the packet recognizing unit of the edge-packet transfer unit is the edge-packet transfer unit of its own or the edge-packet transfer unit that is not connected to the one of the full-mesh wavelength-division-multiplexing transmission [[unit]] units, transmits the packet ~~input from the full-mesh wavelength-division-multiplexing transmission unit~~ to the external-packet transmitting/receiving unit, and transmits the packet input from the external-packet transmitting/receiving unit to the wavelength path, which corresponds to the next destination edge-packet transfer unit, of one of the full-mesh wavelength-division-multiplexing

transmission units, if the next destination of the packet identified by the packet recognizing unit is another edge-packet transfer unit connected to the one of the full-mesh wavelength-division-multiplexing transmission units, and

the packet transmitting/receiving unit of the internetwork connection unit transmits the packet received from the edge-packet transfer unit to the next destination edge-packet transfer unit that is the next destination of the packet identified by the packet recognizing unit.

Claim 2 (Previously Presented): The packet communication system according to claim 1, wherein

the full-mesh wavelength-division-multiplexing transmission units include physically-independent plural full-mesh wavelength-division-multiplexing transmission units arranged in parallel,

the edge-packet transfer unit includes

a first edge-packet transfer unit connected to one of the full-mesh wavelength-division-multiplexing transmission units and the internetwork connection unit; and

a second edge-packet transfer unit connected to all of the full-mesh wavelength-division-multiplexing transmission units,

the internetwork connection unit includes a switching unit that is provided on an input side of the packet transmitting/receiving unit and switches over destinations of a plurality of packets received from a plurality of first edge-packet transfer units connected to the full-mesh wavelength-division-multiplexing transmission units, respectively, to determine a plurality of other first edge-packet transfer units connected to a plurality of other full-mesh wavelength-division-multiplexing transmission units that are the destinations of the packets, and

the internal-packet transmitting/receiving unit of the second edge-packet transfer unit transmits the packet input from the external-packet transmitting/receiving unit simultaneously to same-wavelength paths of the full-mesh wavelength-division-multiplexing transmission units corresponding to the first edge-packet transfer unit or the second edge-packet transfer unit that is the next destination of the packet identified by the packet recognizing unit, if the next destination of the packet identified by the packet recognizing unit is another first edge-packet transfer unit or second edge-packet transfer unit connected to the full-mesh wavelength division multiplexing units, transmits a plurality of packets input from the same-wavelength paths of the full-mesh wavelength-division-multiplexing transmission units simultaneously to the same-wavelength paths of the full-mesh wavelength division multiplexing units corresponding to the other first edge-packet transfer unit or second edge-packet transfer unit, and if the next destination of the packet identified by the packet recognizing unit is the second edge-packet transfer unit itself or first edge-packet transfer unit or second edge-packet transfer unit that is not connected to the full-mesh wavelength division multiplexing units, selects one of the packets, and transmits the selected packet to the external-packet transmitting/receiving unit.

Claim 3 (Previously Presented): The packet communication system according to claim 2, wherein

the internetwork connection unit includes an important communication processing unit that extracts and compares important communication packets from the packets received from the first edge transfer units connected to the wavelength division multiplexing transmission units, respectively, and if there is a packet loss in one packet, copies another packet corresponding the one packet.

Claim 4 (Previously Presented): The packet communication system according to claim 1, wherein

the edge-packet transfer unit includes

a packet recognizing unit that identifies the edge-packet transfer unit that is the next destination of the packet and a service from a header of the packet; and

a packet processing unit that processes the packet received from the external-packet transmitting/receiving unit into a packet form for a communication method used by the full-mesh wavelength-division-multiplexing transmission unit if a communication method corresponding to the service identified by the packet recognizing unit differs from the communication method used by the full-mesh wavelength-division-multiplexing transmission unit, and processes the packet input from the full-mesh wavelength-division-multiplexing transmission unit to the internal-packet transmitting/receiving unit and output to the external-packet transmitting/receiving unit into the packet form for the communication method corresponding to the service identified by the packet recognizing unit if the communication method corresponding to the service differs from the communication method used by the full-mesh wavelength division multiplexing unit.

Claim 5 (Previously Presented): The packet communication system according to claim 4, further comprising:

a gateway unit that connects a specific edge-packet transfer unit and an external network, wherein

the packet processing unit of the specific edge-packet transfer unit processes the packet output to the external-packet transmitting/receiving unit into the packet form for the communication method corresponding to the service identified by the packet recognizing unit if the service is a service for connecting the specific edge-packet transfer unit and the external network, and

the external-packet transmitting/receiving unit transmits the processed packet to the gateway unit corresponding to the external network.

Claim 6 (Previously Presented): The packet communication system according to claim 1, wherein

the edge-packet transfer unit includes

a resource management unit that manages resource states of all of the wavelength paths relating to an interface to which the edge-packet transfer unit of each of the full-mesh wavelength-division-multiplexing transmission units is connected; and

a resource-information transfer unit that transfers information on the resource states as a packet.

Claim 7 (Previously Presented): The packet communication system according to claim 6, wherein

when transmitting the packet input from the external-packet transmitting/receiving unit or the full-mesh wavelength division multiplexing unit, the next destination of which identified by the packet recognizing unit is the other edge-packet transfer unit connected to the full-mesh wavelength-division-multiplexing transmission unit, to the wavelength path of the full-mesh wavelength-division-multiplexing transmission unit corresponding to the other edge-packet transfer unit, the internal-packet transmitting/receiving unit of the edge-packet

transfer unit transmits the packet to another wavelength path if the resource state of the wavelength path is determined to be equal to or higher than a threshold based on resource state information on the wavelength path managed by the resource management unit.

Claim 8 (Previously Presented): The packet communication system according to claim 6, wherein

in a communication for exercising a call admission control by transmitting a call control packet of a call request or a call response to a control server that includes a call-admission control unit, the external-packet transmitting/receiving unit or the internal-packet transmitting/receiving unit of the edge-packet transfer unit adds resource state information managed by the resource management unit to the call control packet when a type of the packet identified by the packet recognizing unit is the call control packet.

Claim 9 (Currently Amended): A packet communication method using

at least two full-mesh wavelength-division-multiplexing transmission units, each of which includes n number of interfaces, and is capable of establishing a bidirectional full-mesh communication between all of the interfaces using a wavelength path based on a wavelength-division-multiplexing technique, where n is an integer equal to or greater than 3;

~~one or more~~ a plurality of edge-packet transfer units, each of which includes at least a packet recognizing unit, an external-packet transmitting/receiving unit, and an internal-packet transmitting/receiving unit, and is connected to the interface of one of the full-mesh wavelength-division-multiplexing transmission by the internal-packet transmitting/receiving unit; and

an internetwork connection unit that is connected to one of the ~~edge packet~~ edge-packet transfer units, the internetwork connection unit including at least a packet recognizing

unit and a packet transmitting/receiving unit, and connects the full-mesh wavelength-division-multiplexing transmission units in a multistage tree-shaped structure through the plurality of edge-packet transfer units, the internetwork connection unit being connected between two of the plurality of edge-packet transfer units, wherein one of the two of the plurality of edge-packet transfer units is connected at an upper-stage of the internetwork connection unit by the external-packet transmitting/receiving unit thereof, and the other one of the plurality of edge-packet transfer units is connected at a lower-stage of the internetwork connection unit by the external-packet transmitting/receiving unit thereof, the packet communication method comprising:

a first step of transmitting a packet including

the packet recognizing [[unit]] units of ~~one of~~ the plurality of edge-packet transfer units identifying [[an]] a next-destination edge-packet transfer unit that is a next destination of a packet from a header of the packet with respect to a packet received by the external-packet transmitting/receiving unit; and

the internal-packet transmitting/receiving unit of the one of the edge-packet transfer units transmitting the packet to the wavelength path, which corresponds to the next destination edge-packet transfer unit, of the one of the full-mesh wavelength-division-multiplexing transmission unit corresponding to the next destination of the packet, if the next destination of the packet identified by the packet recognizing unit is another edge-packet transfer unit connected to the one of the full-mesh wavelength-division-multiplexing transmission units; and

a second step of transmitting a packet including

~~the packet recognizing unit of the edge-packet transfer unit on the other side of the wavelength path identifying the edge-packet transfer unit that is the next destination of the packet received by the internal-packet transmitting/receiving unit;~~

the external-packet transmitting/receiving unit ~~or the internal-packet transmitting/receiving unit corresponding to the destination of the packet~~ transmitting the packet~~, and when the external-packet transmitting/receiving unit is connected~~ to the internetwork connection unit, when the next-destination of the packet identified by the packet recognizing unit of the edge-packet transfer unit is the edge-packet transfer unit that is not connected to the one of the full-mesh wavelength-division-multiplexing transmission units;

the packet recognizing unit of the internetwork connection unit identifying the next-destination edge-packet transfer unit that is a next destination of a packet from a header of the packet, and the internetwork connection unit transmitting the packet to the next-destination edge-packet transfer unit corresponding to the next destination of the packet; and

repeating the first step of packet transmitting and the second step of packet transmitting until the packet is output from the next-destination edge-packet transfer unit corresponding to a final ~~the next~~ destination of the packet.

Claim 10 (Previously Presented): The packet communication method according to claim 9, wherein

the full-mesh wavelength-division-multiplexing transmission units include physically-independent plural full-mesh wavelength-division-multiplexing transmission units arranged in parallel,

the edge-packet transfer unit includes

a first edge-packet transfer unit connected to one of the full-mesh wavelength-division-multiplexing transmission units and the internetwork connection unit; and

a second edge-packet transfer unit connected to all of the full-mesh wavelength-division-multiplexing transmission units,

the internetwork connection unit includes a switching unit that is provided on an input side of the packet transmitting/receiving unit and switches over destinations of a plurality of packets received from a plurality of first edge-packet transfer units connected to the full-mesh wavelength-division-multiplexing transmission units, respectively, to determine a plurality of other first edge-packet transfer units connected to a plurality of other full-mesh wavelength-division-multiplexing transmission units that are the destinations of the packets, and

the packet communication method further comprises:

a third step of transmitting a packet including

the internal-packet transmitting/receiving unit of the second edge-packet transfer unit transmitting the packet input from the external-packet transmitting/receiving unit simultaneously to same wavelength paths of the plurality of parallel full-mesh wavelength-division-multiplexing transmission units;

the internetwork connection unit selecting a packet to be transmitted by changing a communication configuration between the full-mesh wavelength-division-multiplexing transmission units according to the switching unit of the internetwork connection unit switching over paths from the first edge-packet transfer units to other first edge transfer units that are the destinations of the packet; and

performing a redundant packet communication by the internal-packet transmitting/receiving unit of the second edge-packet transfer unit corresponding to the destination of the packet selecting a packet received from the full-mesh wavelength-division-multiplexing transmission units and transmitting the selected packet.

Claim 11 (Previously Presented): The packet communication method according to claim 10, wherein

the internetwork connection unit includes an important communication processing unit, and

the packet communication method further comprises:

the important communication processing unit extracting and comparing important communication packets from the packets received from the first edge transfer units connected to the wavelength division multiplexing transmission units, respectively; and

performing the redundant packet communication by copying, if there is a packet loss in one packet, another packet corresponding the one packet.

Claim 12 (Previously Presented): The packet communication method according to claim 9, wherein

the edge-packet transfer unit includes a packet processing unit, and

the packet communication method further comprises:

performing a packet communication, in which plural services are overlapped, by the packet processing unit processing the packet received from the external-packet transmitting/receiving unit into a packet form for a communication method used by the full-mesh wavelength-division-multiplexing transmission unit if a communication method corresponding to the service identified by the packet recognizing unit differs from the communication method used by the full-mesh wavelength-division-multiplexing transmission unit, and processing the packet input from the full-mesh wavelength-division-multiplexing transmission unit to the internal-packet transmitting/receiving unit and output to the external-packet transmitting/receiving unit into the packet form for the communication method corresponding to the service identified by the packet recognizing unit if the communication method corresponding to the service differs from the communication method used by the full-mesh wavelength division multiplexing unit.

Claim 13 (Previously Presented): The packet communication method according to claim 12, wherein

the packet communication method further uses a gateway unit that connects a specific edge-packet transfer unit and an external network, and

the packet communication method further comprises:

the packet processing unit of the specific edge-packet transfer unit processing the packet output to the external-packet transmitting/receiving unit into the packet form for the communication method corresponding to the service identified by the packet recognizing unit if the service is a service for connecting the specific edge-packet transfer unit and the external network; and

the external-packet transmitting/receiving unit transmitting the processed packet to the gateway unit corresponding to the external network.

Claim 14 (Previously Presented): The packet communication method according to claim 9, wherein

the edge-packet transfer unit includes a resource management unit and a resource-information transfer unit, and

the packet communication method further comprises:

the resource management unit managing resource states of all of the wavelength paths related to the interfaces of each of the full-mesh wavelength-division-multiplexing transmission units to which interfaces the each edge-packet transfer unit is connected; and

the resource-information transfer unit transferring information on each of the resource states as a packet.

Claim 15 (Previously Presented): The packet communication method according to claim 14, further comprising:

the internal-packet transmitting/receiving unit of the edge-packet transfer unit transmitting, when transmitting the packet input from the external-packet transmitting/receiving unit or the full-mesh wavelength division multiplexing unit, the destination of which identified by the packet recognizing unit is the other edge-packet transfer unit connected to the full-mesh wavelength-division-multiplexing transmission unit, to the wavelength path of the full-mesh wavelength-division-multiplexing transmission unit corresponding to the other edge-packet transfer unit, the packet to another wavelength path if the resource state of the wavelength path is determined to be equal to or higher than a threshold based on resource state information on the wavelength path managed by the resource management unit.

Claim 16 (Previously Presented): The packet communication method according to claim 14, further comprising:

the external-packet transmitting/receiving unit or the internal-packet transmitting/receiving unit of the edge-packet transfer unit adding resource state information managed by the resource management unit to a call control packet when a type of the packet identified by the packet recognizing unit is the call control packet, in a communication for exercising a call admission control by transmitting the call control packet of a call request or a call response to a control server that includes a call-admission control unit.

Claim 17 (Previously Presented): The packet communication system according to claim 1, wherein the internal packet transmitting/receiving unit further transmits the packet

input from the external-packet transmitting/receiving unit to a same wavelength path of the full-mesh wavelength-division-multiplexing transmission unit, corresponding to the edge-packet transfer unit that is the next destination of the packet identified by the packet recognizing unit, the next destination of the packet not being a final destination of the packet, and

an information of the packet identified by the packet recognizing unit including a destination address and a packet type.

Claim 18 (Previously Presented): The packet communication method according to claim 9, wherein said step of first transmitting further comprises:

the internal packet transmitting/receiving unit transmits the packet input from the external-packet transmitting/receiving unit to a same wavelength path of the optical network of the full-mesh wavelength-division-multiplexing transmission unit, corresponding to the edge-packet transfer unit that is the next destination of the packet identified by the packet recognizing unit, the next destination of the packet not being a final destination of the packet, and an information of the packet identified by the packet recognizing unit including a destination address and a packet type.